Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
Wrentham Developmental Center

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- Inventory land uses within the recharge areas of all public water supply sources;
- Assess the susceptibility of drinking water sources to contamination from these land uses; and
- Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
May 19, 2003

Table 1: Public Water System (PWS) Information

PWS NAME	Wrentham Developmental Center
PWS Address	144 Emerald Street
City/Town	Wrentham, Massachusetts
PWS ID Number	4350001
Local Contact	David Perry
Phone Number	(508) 384-1658

Well Name	*Source ID#*	*Zone I (in feet)*	*Zone II#*	*Source Susceptibility*
Station #1	4350001-01G	400	270	Moderate
Station #2	4350001-02G	400	270	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The two wells for the Wrentham Developmental Center (the Center) share the same Zone II that is located within the towns of Wrentham and Norfolk. Each well has a Zone I of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone I and Zone II.

Water from the wells is not treated before entering the distribution system. For current information on monitoring results, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

Drinking water monitoring reporting data are also available on the web at http://www.epa.gov/safewater/ccr1.html.

Section 2: Land Uses in the Protection Areas

The Zone II for the Center is a mixture of forest and residential land use (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Zone Is
2. Residential land uses
3. Schools
4. Transportation corridors

The overall ranking of susceptibility to contamination for the system is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. The Zone Is for the wells are owned or controlled by the public water system. Only water supply activities are allowed in the Zone I. The Zone Is for the wells are forest and wetlands with an access road to the pump house. An electric utility transformer is located on the utility pole outside of the pump house, although most transformers have been upgraded and no longer use PCBs, the water supplier should verify that the transformer does not contain PCBs.

Zone I Recommendations:

- ✓ Ensure that the electric transformer located outside of the pump house does not contain PCBs. Your electric utility company can assist in making this determination.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non water supply activities out of the Zone I.

2. Residential Land Uses – Approximately 45% of the Zone II consists of residential areas. None of the areas have public sewers, and so all use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	Zone II	Threat	Comments
Local Roads	No	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Schools	No	Yes	Moderate	Educate schools on source protection BMPs.
Residential – Septic Systems	No	Yes	Moderate	Educate residents on proper septic system operation and maintenance.
Residential – Lawn Care	No	Yes	Moderate	Educate residents on proper lawn care techniques.
Residential – Fuel Oil Storage	No	Yes	Moderate	Educate residents on proper hazardous materials storage and use.
Stormwater	No	Yes	Moderate	Map stormwater drainage and include key locations in your emergency response plan.

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in the attachments and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls. Visit DEP's web site for additional information and assistance at mass.gov/dep/brp/wm/nonpoint.htm.

3. Schools - There are two schools in the Zone II. Activities associated with schools commonly involve hazardous materials such as fuel oil, laboratory, art, photographic, machine shop, and other chemicals. These hazardous materials have the potential to impact drinking water supplies if they are improperly handled, stored, or materials are improperly disposed into septic systems.

Schools recommendations:

- ✓ Contact schools in the Zone II to discuss source protection issues including BMPs that they can reduce the risk of contamination.
- ✓ Assist schools with source protection education for maintenance staff, food preparation staff, teachers and students.

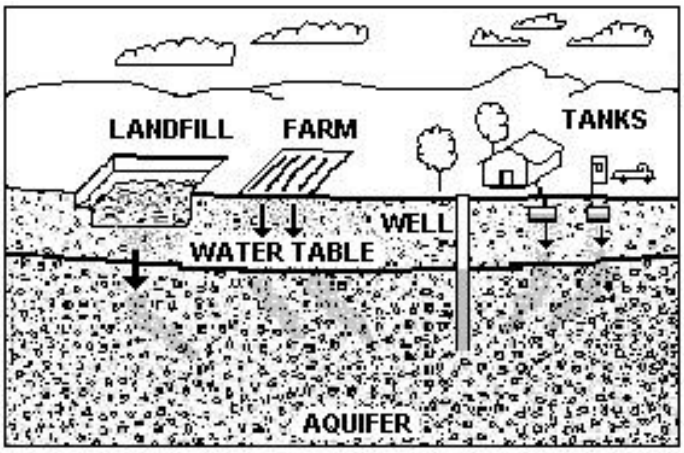

Figure 1: Example of how a well could become contaminated by different land uses and activities.

4. Transportation Corridors - Local roads exist throughout the Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catchbasins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with

For More Information:

Contact Isabel Collins in DEP's Lakeville Office at (508) 946-2726 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

Refer to Table 2 for a complete list of land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. The Center is commended for current protection measures including:

- Ownership of the Zone I.
- Posting signs at the wellhead (after the SWAP visit).
- Posting of an emergency response list at the pumphouse.

The Center should review and adopt the key recommendations above and the following:

Priority Recommendations:

✓ Work with schools and residents on source protection issues.

Zone I:

✓ Keep non-water supply activities out of the Zone I.
✓ Investigate if the transformer next to pump house contains PCBs.
✓ Prohibit public access to the well and pumphouse by locking facilities and gating roads.
✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Planning:

✓ Work with local officials in Wrentham and Norfolk to include the Center's Zone II in Aquifer Protection District Bylaws and to assist you in improving protection.
✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Industrial Floor Drains Brochure
- Healthy Schools Fact Sheet